

§ 173.189 Batteries containing sodium or cells containing sodium.

(a) Batteries and cells may not contain any hazardous material other than sodium, sulfur or sodium compounds (*e.g.*, sodium polysulfides, sodium tetrachloroaluminate, *etc.*). Cells not forming a component of a completed battery may not be offered for transportation at a temperature at which any liquid sodium is present in the cell. Batteries may only be offered for transportation, or transported, at a temperature at which any liquid sodium present in the battery conforms to the conditions prescribed in paragraph (d) of this section.

(b) Cells must be protected against short circuit and must consist of hermetically sealed metal casings that fully enclose the hazardous materials and that are so constructed and closed as to prevent the release of the hazardous materials under normal conditions of transport. Cells must be placed in suitable outer packagings with sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging, and to ensure that no dangerous shifting of the cells within the outer packaging occurs in transport. Cells must be packaged in 1A2, 1B2, 1N2, 1D, 1G, 1H2, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2, 3A2, 3B2 or 3H2) outer packagings that meet the requirements of part 178 of this subchapter at the Packing Group II performance level.

(c) Batteries must consist of cells secured within, and fully enclosed by a metal casing so constructed and closed as to prevent the release of the hazardous materials under normal conditions of transport. Batteries may be offered for transportation, and transported, unpacked or in protective packagings that are not subject to the requirements of part 178 of this subchapter.

(d) Batteries containing any liquid sodium may not be offered for transportation, or transported, by aircraft. Batteries containing liquid sodium may be transported by motor vehicle, rail car or vessel under the following conditions:

(1) Batteries must be equipped with an effective means of preventing exter-

nal short circuits, such as by providing complete electrical insulation of battery terminals or other external electrical connectors. Battery terminals or other electrical connectors penetrating the heat insulation fitted in battery casings must be provided with thermal insulation sufficient to prevent the temperature of the exposed surfaces of such devices from exceeding 55 °C (130 °F).

(2) No battery may be offered for transportation if the temperature at any point on the external surface of the battery exceeds 55 °C (130 °F).

(3) If any external source of heating is used during transportation to maintain sodium in batteries in a molten state, means must be provided to ensure that the internal temperature of the battery does not reach or exceed 400 °C (752 °F).

(4) When loaded in a transport vehicle or freight container:

(i) Batteries must be secured so as to prevent significant shifting within the transport vehicle or freight container under conditions normally incident to transportation;

(ii) Adequate ventilation and/or separation between batteries must be provided to ensure that the temperature at any point on the external surface of the battery casing will not exceed 240 °C (464 °F) during transportation; and

(iii) No other hazardous materials, with the exception of cells containing sodium, may be loaded in the same transport vehicle or freight container. Batteries must be separated from all other freight by a distance of not less than 0.5 m (1.6 feet).

(e) Vehicles, machinery and equipment powered by sodium batteries must be consigned under the entry “Battery-powered vehicle or Battery-powered equipment.”

[Amdt. 173–241, 59 FR 67511, Dec. 29, 1994, as amended by Amdt. 173–256, 61 FR 51338, Oct. 1, 1996; 66 FR 45380, Aug. 28, 2001; 68 FR 61941, Oct. 30, 2003; 74 FR 2259, Jan. 14, 2009; 76 FR 43530, July 20, 2011; 78 FR 1088, Jan. 7, 2013]

§ 173.192 Packaging for certain toxic gases in Hazard Zone A.

When § 172.101 of this subchapter specifies a toxic material must be packaged under this section, only the following cylinders are authorized: